

**New Tribal Assignment for *Orthocomotis* Dognin and
Paracomotis Razowski Based on an Unusual
Modification of the Chaetosema
(Lepidoptera: Tortricidae)**

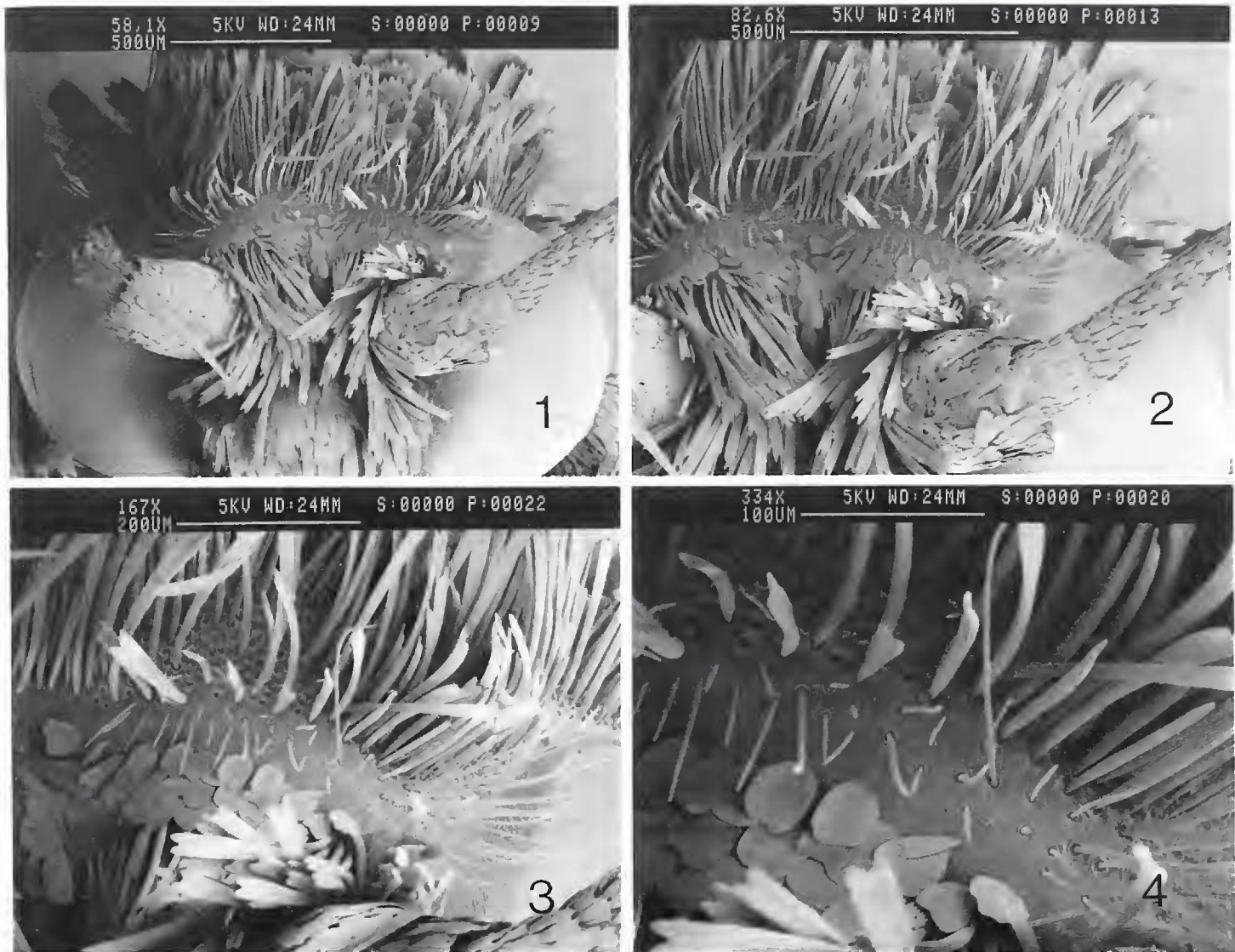
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Abstract. — The Neotropical genera *Orthocomotis* Dognin and *Paracomotis* Razowski are transferred to the Schoenotenini on the basis of the shared possession of a narrow, naked strip across the vertex of the head bearing a dorsal continuation of the chaetosema. The inclusion of *Orthocomotis* and *Paracomotis* in the Schoenotenini results in an apparent Gondwanaland distribution of the tribe, suggesting that is of comparable age to tribes of the Chlidanotinae, generally considered the most primitive tortricid subfamily.

The monophyly of *Orthocomotis* Dognin plus *Paracomotis* Razowski is undisputed. Razowski (1982) identified the following synapomorphies to support this relationship: 1) forewing broad with short, rounded apex; 2) forewing with refractive metallic green scales; and 3) female with the thick, sculptured, intersegmental membrane incorporated into the sterigma. I have identified two additional characters that support the monophyly of the group: shared possession of two pairs of abdominal dorsal pits (i.e., one pair on Ab-2 and one pair on Ab-3) in both males and females (Obraztsov, 1956), and a narrow, bare strip across the vertex of the head bearing a dorsal continuation of the chaetosema (Figs. 1-4). The chaetosema is a pincushion-like structure typically located posterad of the base of the antenna near the vertex of the compound eye, bearing 5-15 slender sensory setae; it is assumed to play a role in mechano-reception. This paper addresses the phylogenetic and biogeographical significance of the taxonomic distribution of an unusual modification of the chaetosema exhibited by *Orthocomotis*, *Paracomotis*, and several genera in the Schoenotenini.

The Neotropical genus *Orthocomotis* previously has defied confident tribal assignment. Clarke (1956) treated it as a member of the Tortricinae without specific tribal placement. Razowski initially considered it part of the Archipini, but later (Razowski, 1982) transferred it to the Polyorthini (in the subfamily Chlidanotinae) on the basis of the fusion of the aedeagus with a minutely bristled dorsal portion of the anellus, and the possession of a distal sclerite in the vesica. However, the inclusion of *Orthocomotis* and *Paracomotis* in the Polyorthini requires the secondary loss of several characters considered diagnostic for the tribe, i.e., the uniquely invaginated or folded valva and associated hairpencil, the large saccus-vinculum complex, and the widely separated origin of hindwing veins M2 and M3 (Diakonoff, 1974; Horak and Brown, 1989). Powell (1986) rejected Razowski's



Figures 1–4. Scanning electron micrographs of the head of *Orthocomotis* species illustrating dorsal continuation of chaetosema. 1. 58.1 \times . 2. 82.6 \times . 3. 167 \times . 4. 300 \times .

assignment of the group to the Polyorthini and transferred *Orthocomotis* and *Paracomotis* to the Euliini on the basis of symplesiomorphies of the male and female genitalia.

I recently discovered that the characteristic dorsal continuation of the chaetosema, present in all *Orthocomotis* and *Paracomotis* (Brown, 1989), also occurs in *Saetotenes* (*Anthophallodes*) *dimorpha* (Diakonoff), a New Guinean species in the tribe Schoenotenini. In addition to the striking superficial resemblance of *Saetotenes dimorpha* to some *Orthocomotis* (i.e., wing shape, size, and pattern), the male genitalia of *S. dimorpha* possess a pair of large, minutely bristled, lateral lobes of the anellus adjacent to the aedeagus, reminiscent of many *Orthocomotis*. An examination of 21 schoenotenine genera in the collections of the United States National Museum, Washington, D.C., British Museum (Natural History), London, England, and Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands, revealed that many genera assigned to Schoenotenini (Diakonoff, 1960) have a similar or identical configuration of the chaetosema (e.g., *Schoenotenes* Meyrick, *Saetotenes* Diakonoff, *Stenotenes* Diakonoff, *Metachorista* Meyrick, *Rhopalotenes* Diakonoff, *Rhabdotenes* Diakonoff, *Campotenes* Diakonoff, *Barygnathella* Diakonoff, *Protarchella* Diakonoff, *Oligotenes* Diakonoff). The character can be observed only in specimens in which the vestiture of the head has not been damaged, thus it was not observed among several taxa that may possess

it. I believe that this character represents a synapomorphy for these genera and may possibly define the Schoenotenini. On this basis, *Orthocomotis* and *Paracomotis* provisionally are transferred to the Schoenotenini. The similarity in external facies and the bristled anellus suggest that *Orthocomotis* and *Paracomotis* are most closely related to *Saetotenes* (*Anthophallodes*) among schoenotenine genera examined.

Common (1965) stated that the "apparent homogeneity of the Schoenotenini is indicated by the absence of ocelli, at least in the Australian and Pupuan genera, and the retention and course of the stem of *M* in the discal cell of the forewing," i.e., its termination between *M*1 and *M*2 rather than between *M*2 and *M*3. However, the absence of ocelli is not consistent within the Schoenotenini, and the characteristic course of the *M*-stem is not congruent with the modification of the chaetosema.

Small- to medium-sized ocelli are present in nearly all New Guinean schoenotenine genera I examined (e.g., *Schoenotenes*, *Camptotenes*, *Saetotenes*, *Barygnathella*, *Rhopalotenes*, *Rhabdotenes*, etc.), suggesting that this character is unreliable in a phylogenetic context. Although Diakonoff (1960) excluded the Australian genera *Proselena* Meyrick and *Palaeotoma* Meyrick from the Schoenotenini, Common (1965) returned them to the tribe on the basis of the characters cited above. These two genera lack the dorsal continuation of the chaetosema. Consequently, they are either incorrectly assigned to Schoenotenini as indicated by Diakonoff (1960), or the characteristic chaetosema is not consistent throughout the tribe (i.e., secondarily lost among some taxa, derived within the tribe, or a convergence among unrelated taxa). I have not examined wing slides of Schoenotenini to determine the consistency in the course of the *M*-stem, but in four wing slides of *Orthocomotis*, representing three species, the character is variable.

The inclusion of *Orthocomotis* and *Paracomotis* in the Schoenotenini has biogeographic implications. According to Diakonoff (1960), the tribe previously was known from the Indo-Australian region (19 genera of which 12 are confined to New Guinea) and Madagascar (4 monotypic genera). The discovery of members of this tribe in South America demonstrates an apparent southern continental distribution, and suggests that the group may have been widely distributed prior to the break-up of Gondwanaland.

In the Tortricidae, southern continental distributions are found in each tribe of the primitive subfamily Chlidanotinae (i.e., Chlidanotini, Hilarographini, and Polyorthini), in the Archipini (Tortricinae) (Horak, 1985), and in the Microcorsini (Olethreutinae) (Horak and Brown, 1989). Although Diakonoff (1960) included the Schoenotenini in the Chlidanotinae, primarily on the basis of the presence of hami in the male genitalia, Tuck (1981) and Horak (1984) argue convincingly for its exclusion, considering the tribe part of the Tortricinae. Within the Tortricinae, only the Archipini previously have been considered to exhibit a Gondwanan distribution (Horak, 1985). However, since the Archipini is almost certainly polyphyletic, such a biogeographic hypothesis is a bit premature.

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LITERATURE CITED

- Brown, J. W. 1989. Description of a new genus in the Chlidanotini and review of phylogenetic relationships among chlidanotine tribes (Lepidoptera: Tortricidae). *Entomol. Scand.*, In press.
- Clarke, J. F. G. 1956. Neotropical moths in the genus *Orthocomotis* (Lepidoptera: Tortricidae). *Trans. Royal Entomol. Soc. London* 107:139-168.
- Common, I. F. B. 1965. A revision of the Australian Tortricini, Schoenotenini and Chlidanotini (Lep., Tortricidae: Tortricinae). *Aust. J. Zool.* 13:613-726.
- Diakonoff, A. 1960. Synopsis of the Schoenotenini with descriptions of new genera and species (Lepidoptera, Tortricidae, Chlidanotinae). *Nova Guinea* 4:43-82.
- . 1974. The South Asiatic Polyorthini with notes on species of *Polyortha* Dognin (Lep., Tortricidae). *Zool. Verh. Leiden* 131:1-86.
- Horak, M. 1984. Assessment of taxonomically significant structures in Tortricinae (Lep., Tortricidae). *Mitt. Schweiz. Entomol. Gesell.* 57:3-64.
- . 1985. *Williella*—a new tortricine genus from New Caledonia indicating Gondwanan distribution for the family (Lepidoptera: Tortricidae). *Entomol. Scand.* 15:423-433.
- , and R. L. Brown. 1989. Taxonomy and phylogeny. In L. P. van der Geest (ed.), *Tortricoid pests*. Elsevier, Amsterdam, In press.
- Obraztsov, N. S. 1956. Some considerations about an abdominal organ in certain Tortricidae moths. *Lepid. News* 10:153-156.
- Powell, J. A. 1986. Synopsis of the classification of Neotropical Tortricinae, with descriptions of new genera and species (Lepidoptera: Tortricidae). *Pan-Pac. Entomol.* 62:372-398.
- Razowski, J. 1982. Notes on *Orthocomotis* Dognin (Lepidoptera: Tortricidae) with descriptions of new taxa. *Bull. L'Acad. Polonaise Sci.* 30:29-36.
- Tuck, K. R. 1981. A new genus of Chlidanotini (Lep., Tortricidae) from New Caledonia, with a key to genera and check-list of species. *Syst. Entomol.* 6:337-346.